FLOOD DISASTER RECOVERY

TIPS FOR STARTING UP A FOOD PLANT AFTER A NATURAL FLOOD.

This article is part two of a two-part series focusing on the startup aspects following a flood disaster (i.e. restoration, cleaning, inspection, approvals, and production). The focus of part one was to minimize the property damage of an imminent flood. Checklists have been developed from each article as a reference for future food plant flood disaster victims.

You have done about everything you can do to prevent flood damage in your plant. Now you face filth that you never imagined. Hopefully some of your prevention efforts have helped minimize the task of cleaning. Be patient and do not start the cleaning process until the area is ready. Although "rough" cleaning has likely been going on for a while, a more thorough cleanup follows restoration, when it is safe to do so. When the proper officials have turned on utilities, it is time to start cleaning and get the plant ready for startup.

Cleaning a flooded food plant is a major challenge and one that likely will require additional resources. Although wet cleaning basics (even for a facility designed for dry cleaning) are applicable for this effort, there are a few additional items that you should consider. For example, removing moisture trapped inside solid concrete or block walls is very important to control mold. In addition, be alert to reconditioned materials that may enter the supply chain. Cleaning a flooded food plant is a stressful activity. It is critical to develop and implement a cleanup-to-startup action plan to manage this project. What follows are questions you should ask yourself before you get started.

WHEN DO YOU KNOW YOU NEED PROFESSIONAL HELP?

If you have technical questions or do not feel comfortable with a particular task, ask for help. When your internal resources cannot adequately address certain scenarios, professional help should be contacted. Some areas of specialty to consider are:

- Contraction (bulldozers, evacuators)
- Engineering
- Microbiology (mold)
- Re-surfacing (floors, walls, equipment)
- Pest control
- Photography (documentation)

- Portable power
- Portable dehumidification
- Legal
- Loss risk (insurance)
- Salvagers or re-conditioners
- Sanitation

WHAT SHOULD YOU DO FIRST?

Prepare for the next flood as you begin restoration efforts. As you go to work, think about what you can do to prevent these cleanup activities in the future. The first thing you should do is to focus on workplace safety. Validate workplace safety with periodic inspections of actions and conditions. Assure worker safety by providing adequate lighting and ventilation, as well as necessary training and personal protective equipment (PPE). Some flood-related PPE includes:

- Cleated boot-foot rubber hip waders
- Safety work shoes (durable soles)
- Head protection (bump hats)
- Water-resistant suits and gloves
- Respiratory protection (disposable or half-mask)
- Eye and face protection

HOW DO YOU CLEAN A FLOODED FOOD PLANT?

The level of cleaning activity reflects the amount of contaminants being removed. For example, start with the obvious foreign matter removal (muck) and move on to the hidden microbes (mold). To supplement your existing equipment, additional cleaning equipment, such as portable power washers, wet vacuums, squeegees, hoses and pumps, can be rented or purchased. Cleanliness standards (internal and external) may be increased due to the additional contaminates that are encountered. "When in doubt, throw it out" is a good principle to follow during a flood disaster.

Of the three microbial categories of molds, yeasts and bacteria, mold contamination is most likely to be encountered. Although

<u>Special Report</u>

cleaning will be designed for general mold prevention, laboratory validation of yeast and bacteria levels is necessary. Visual presence of mold is a sign that something else may be wrong. Removing nutrient soils with a water detergent followed by a chlorine sanitizer along with moisture reduction (dehumidification) will lower the risk of all microbial categories. Solid concrete or block walls can be sealed (after the dehumidification process) with an epoxy paint containing a mold inhibitor. Equipment cleaning should follow an out-of-place technique as this method allows for good inspection. This cleaning will consist of 10 sequential steps.

- Prepare and organize the cleaning job 1.
- Dry-clean from the top down 2.
- Inspect 3.
- Pre-rinse
- Wash 5.
- 6. Post-rinse
- 7. Inspect
- 8. Sanitize
- 9. Put back to original position
- 10. Inspect

There are some additional considerations to help with cleaning effectiveness. Be careful about mixing cleaners and disinfectants together and follow the label directions, even in the middle of a flood disaster. Contaminated floors will be a focus of restoration and cleaning activity. Things will be busier than usual and an opendoor policy may be necessary during this recovery period. Even if dehumidification is being used, many doors will be open frequently. There is a lot of activity with personnel and equipment going in and out. Keep in mind that prior to startup, a heat treatment or fumigation should be conducted for pest control purposes. Heat treatments are preferred as they tend to further dry things out. This step will assure a tight building followed with a return to a closeddoor policy. Be patient as the drying process may take weeks.

The floors above the contaminated lower floors should be kept in a pre-clean and secured state. Assure traffic is at a minimum by keeping doors closed and any other openings screened. Since humidity will be at a high level, dehumidification or air movement in these areas is beneficial to managing pests and microbes. People working in this environment appreciate fresh air and are more productive.

One should expect to re-clean some structural areas such as walls and floors. Cleaning the filth before it becomes encrusted is important. Manual scraping and/or low-pressure power washing followed by rinsing and bleaching is effective. The air movers should be operating at all times. Out-of-place equipment cleaning can be done at a nearby dedicated area. Any new equipment should pass through this process. Although new equipment cleaning may not be as intense, the inspection should not be compromised. Inspection and swab sampling will validate the effectiveness.

The roofs will need to be inspected and cleaned as necessary. Since rooftops were recent islands, some unusual pest problems such as birds (droppings) or rats could be encountered. This is also a good time to verify the vents and air intakes are working. The building perimeter and grounds will need to be inspected, cleaned, and/or reconditioned as necessary. The drainage, as originally designed, may have been altered and should be reinstated. This is a good time to re-establish the entire rodent and pest abatement program. A more intense plan should be in place for filth flies, mosquitoes, and mites. Insect light traps, sticky traps (for flies and other critters), and other monitoring devices should be used.

WHAT SHOULD I DO BEFORE PRODUCTION STARTUP?

The development of a "punch" list by a team inspection is a critical step before startup. "Punching" out leftover items, validating results, and documenting the acceptance assures that you did not miss something. Posting an acceptance notice in each area that reinstates the GMPs ensures that specific plant zones will be kept that way. Providing entry footbaths to approved areas with a chlorine solution is added assurance. A few days before a plant test run is a good time to conduct a general heat treatment (125°F to 135°F) or fumigation. This is the end of the recovery transition and a good time to establish a pest-free plant. The pest management program should be reviewed and altered to meet the current need.

Following the general heat treatment, a quality systems audit and inspection by the resident team is in order. This audit re-installs standard operating and sanitation procedures. The inspection part of this audit should evaluate the plant from a customer's perspective. Upon completion of these action items, consider repeating the audit. However, this time the audit should be carried out by a highly reputable third-party and in some cases the FDA. This report will serve as an authoritative acceptance document to be shared with vested parties, such as customers. This audit is a critical transition to a standard operating condition.

The plant should be ready for a production test run. Require appropriate certificates of analysis (COAs) and disaster recovery documentation from your suppliers. Much of the plant and process has been rebuilt and should be tested prior to any formal production. This test run should serve as a flush-out of the process, removing any hidden physical contaminates while allowing for quality (chemical and microbial) tests of processes and products. Validating suppliers, ingredients, processes, HACCP, products, and even the testing equipment is one of the last things to do before shipping any product.

WHAT SHOULD I DO AFTER PRODUCTION STARTUP?

Post-flood recovery startup products should be placed on a hold and test program. If the quality tests conform to the standards and these products perform as intended, the flood disaster recovery has been completed. The last step of this long recovery is to hold a team meeting to evaluate the overall recovery performance and assure necessary documentation is completed.

If you have taken the time to rebuild correctly and made improvements that will protect your building from damage by the next flood, you should have a reconditioned plant that is now a better operation. AIB

The author is President of QCC Services, a consulting business located in Kansas City, Mo. Dosland can be reached at 816/436-1627, oled@ke.rr.com.